DESIGN SUMMARY

LAKE TIPPECANOE
HANNA B. WALKER DRAIN SEDIMENT TRAP

February, 2000

Prepared for:
Tippecanoe Environmental Lake and Watershed Foundation
P.O. Box 55
North Webster, Indiana 46555

Prepared by:
J. F. New & Associates, Inc.
708 Roosevelt Road
Walkerton, Indiana 46574
219-586-3400

DESIGN SUMMARY

LAKE TIPPECANOE
HANNA B. WALKER DRAIN SEDIMENT TRAP

February, 2000

EXECUTIVE SUMMARY

The proposed project involved the construction of one sediment trap on Hanna B. Walker Drain, a tributary of Lake Tippecanoe. The trap is designed to reduce the sediment flux from the Hanna B. Walker Drain into the lake. The proposed project is a stop-gap measure to intercept heavy sediment loads while more permanent solutions upstream can be addressed. The construction spoils were deposited into an existing, approved dual-stage sediment basin located 400 feet north of the project area.

The trap was designed to collect up to 50% of the suspended solids and 100% of the bed load. The trap is bordered on the east and on the upstream end by a PVC sheet pile wall designed to protect the adjacent concrete seawall and ease future cleaning out of the trap. The area between the sheet pile and seawall was backfilled and protected with coconut fiber erosion control matting and fiberlogs vegetated with wetland plants. Prairie seeding of adjacent Nature Conservancy/YMCA Camp Crosley property occurred on an access area north of the sediment trap, as per an agreement with The Nature Conservancy.

DESIGN SUMMARY

LAKE TIPPECANOE
HANNA B. WALKER DRAIN SEDIMENT TRAP

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SECTION I. PROJECT DESCRIPTION AND PURPOSE

The proposed project involved the construction of one sediment trap on Hanna B. Walker Drain, a tributary of Lake Tippecanoe. The trap was designed to reduce the sediment flux from the Hanna B. Walker Drain into the lake.

As identified within the previous study titled "Lake Tippecanoe Diagnostic Study," Hanna B. Walker Drain is the source of the high nutrient and sediment load to Lake Tippecanoe. The deposited sediment is creating sediment bars and dense European water milfoil beds at and beyond the mouth of this drain. The proposed project is a stop-gap measure utilizing a relatively inexpensive sediment trap, while more permanent solutions are addressed in the watershed.

The trap also serves to collect sediment created during any future restoration activities. Ultimately, it is anticipated that this trap will become unnecessary. However, without this temporary provision, many tons of sediment will flow to the lake annually, with even higher sediment levels delivered to the lake during upstream restoration activities.

SECTION II. PROJECT DESIGN DETAILS

The sediment trap is approximately 20 feet wide by 75 feet long by 6 feet deep. The trap is designed to collect up to 50% of the suspended solids and 100% of the bed load. The trap is bound on two sides by a PVC sheet pile wall. The wall along the east bank of the drain is to keep the east concrete seawall from collapsing and is driven from 6-10 feet below the surface of the water. The sheet pile along the upstream edge of the sediment trap will insure s integrity of the trap while preventing a headcut from forming within the Hanna B. Walker Drain. The PVC wall is anchored with cable and deadman or anchor bolts into the existing concrete wall every eight feet.

The area between the sheet pile and seawall is filled with sand, covered with coconut fiber matting, bordered by biologs and vegetated with wetland plants. Additional prairie planting shall occur to the north of the sediment trap, as per an agreement with The Nature Conservancy and YMCA Camp Crosley. All agreements and permits necessary for this project are attached in Appendix A.

The basin was excavated using a barge mounted hydraulic dredge with the material being pumped to an existing approved disposal basin 400 feet upstream. The sizing calculations for the sediment trap are included within Appendix B. No unusual problems were noted during dredging as this same area had been dredged several previous times.

SECTION III. DESIGN SPECIFICATIONS

The following specifications shall be used during construction to ensure project is built to the purpose and intent of the original design:

A. Sediment Trap Excavation

Sediment trap excavation shall be done by hydraulic dredging with a floating dredge so as to avoid unnecessary disturbance to adjacent property. Hydraulic dredging shall be performed by an experienced dredge operator familiar with the site. The sediment trap shall be excavated to the lines and grades as shown on the construction drawings. The spoils shall be deposited into an existing, approved dual-stage sediment basin located 400 feet north of the project area.

B. Sheet Pile

Sheet pile shall be used to form the eastern and northern boundaries of the sediment trap. Sheet pile shall be PVC sheet pile as manufactured by C-Loc. PVC sheet pile shall have a minimum yield strength of 6,350 psi (tensile) and flex strength of 8,600 psi (bending). PVC sheet pile shall be UV stabilized. Sheet pile shall be driven with an excavator or vibrator in the locations shown on the construction drawings. Sheet pile shall be driven one to three feet lakeward of the concrete seawall to a depth of 6-10 feet with the tops of the wall remaining just below the normal waterline. Anchors shall be used to secure the sheet pile to the bank. Anchors shall be model RAL 20/47 anchors as manufactured by Royal Anchor Systems, Inc. or approved equal. Anchors shall be placed on ten foot centers or less. The area between the sheet pile and seawall shall be filled with ungraded fill material.

C. Biologs and Seeding

Biologs shall be placed between the sheet pile and seawall and cover the sheet pile. The biologs will be vegetated on site with bur reed (*Sparganium* sp.), yellow iris (*Iris pseudacorus*), blue flag (*Iris virginica*), pickerel weed (*Pontederia cordata*), arrow arum (*Peltandra virginica*), and sweet flag (*Acorus calamus*). Biologs shall be installed in the spring of 2000 to provide a full growing season for plant establishment and survivability. Any area disturbed on the owner's property will be reseeded/resodded at the owner's discretion. Additionally, a 40 foot by 130 foot area adjacent to the owner's north property boundary shall be seeded with an appropriate prairie mix as per the agreement with The Nature Conservancy and YMCA Camp Crosley.

SECTION IV. CONSTRUCTION TASK AND TIMETABLE

The following tasks shall be performed during construction and by the dates shown:

Task		Date
1.	Excavate Sediment Trap	Fall 1999
2.	Drive Sheet Pile	Fall 1999
3.	Install Anchors	Spring 2000
4.	Fill Behind Sheet Pile	Spring 2000
5.	Install Biologs	Spring 2000
6.	Seeding and Site Clean-up	Spring 2000
7.	Project Complete	Spring 2000

SECTION V. MAINTENANCE ACTIVITIES

The following maintenance activities shall be performed by the Lake Association:

Frequency	Task
Annually	Visually inspect sheet pile for damage. Repair as necessary.
Annually	Visually inspect biologs and prairie area. Replant as necessary.
Annually	Measure sediment depth within trap.
As Needed	Excavate sediment when trap is more than 60% full.

The dredge spoils should be removed to a permanent disposal site. Proper permits should be obtained prior to any excavation activity. As of the date of this document, no additional permits are required to maintain the sediment trap. Maintenance is a condition of the permits.

SECTION VI. PROJECT CONCLUSIONS

The overall project purpose is to capture sediment which would otherwise be deposited within Lake Tippecanoe. On this level the project will be successful. This project, however, is a short term solution which helps reduce sediment but does not address the overall cause of sedimentation from tributaries to Lake Tippecanoe. For the project to be completely successful nutrients from the dairy farm and erosion from agricultural fields and the stream banks must be accomplished.

APPENDIX A

PROJECT PERMITS

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059

December 14, 1998

Operations Division
Regulatory Branch (North)
ID No. 199801841-mgk

Ms. Holly LaSalle
Tippecanoe Environmental Lake and Watershed Foundation
67 EMS T49 Lane
Syracuse, Indiana 46567

Dear Ms. LaSalle:

This is in response to your request for authorization to temporarily impact 0.04 acres of Hanna B. Walker Drain in order to construct a sediment trap to reduce the amount of sand and organic matter entering Lake Tippecanoe. According to the design plans submitted by your agent, J.F. New & Associates, Inc., the project would be located near the mouth of the stream within Section 8 of Township 33 North, Range 7 East in Kosciusko County, Indiana. The information supplied by your agent was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

Your project is considered a discharge of fill material into a headwaters or isolated waters. Since less than 3 acres of "waters of the United States" would be impacted by this discharge and the work site is within a headwaters tributary, the project is authorized under the provisions of Nationwide General Permit 33 CFR 330 (26), Headwaters and Isolated Waters Discharges, as published in the Federal Register, December 13, 1996. Under the provisions of this authorization, you must comply with the enclosed Terms for Nationwide Permit No. 26 and the Nationwide Permit Conditions.

Additionally, you must obtain individual Water Quality Certification (WQC) from the Indiana Department of Environmental Management (IDEM) **prior** to commencement of the proposed activity. Please furnish a copy of your requesting letter to us.

You can write to IDEM at:

Indiana Department of Environmental Management
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Telephone: (317) 232-8683

If we do not hear from IDEM within 60 days of the receipt of your letter, we will presume a waiver of the WQC. We may grant IDEM additional time if requested. The responsibility for obtaining the state WQC rests with you.

After you obtain your certification or waiver, you may proceed with construction without further contact or verification from us. However, a copy of the WQC must be forwarded to us. Please note that you must comply with any WQC conditions.

The enclosed Compliance Certification should be signed and returned when the project is completed. This verification is valid until Nationwide Permit (NWP) 26 expires or for 2 years, whichever comes first. Currently NWP 26 expires on September 15, 1999. If this project is not completed by that date or if this project is modified, you must contact us for another permit determination. A copy of this letter is being sent to your agent and to the IDEM.

If you have any questions, please contact Mr. Matthew G. Kuziensky by writing to the above address, ATTN: CELRL-OP-FN, or by calling (317)532-4197. Any correspondence on this matter should refer to our ID No. 199801841-mgk.

Sincerely,

ORIGINAL SIGNED

Doug Shelton
Chief, North Section
Regulatory Branch

Enclosures

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We make Indiana a cleaner, healthier place to live

Frank O'Bannon
Governor

John M. Hamilton
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.ai.org/idem

December 17, 1998

VIA CERTIFIED MAIL Z 376 767 060

Ms. Holly LaSalle
Tippecanoe Environmental Lake & Watershed Foundation
67 EMS T49A Lane
Syracuse, IN 46567

Dear Ms. LaSalle:

Re: Section 401 Water Quality Certification
Project: TELWF- Hanna Walker Drain
IDEM ID #: 98-43-RRJ-00421-A
COE ID #: Unknown
County: Kosciusko

Office of Water Management staff have reviewed your application dated October 30, 1998, requesting Section 401 Water Quality Certification. You propose to construct a sediment trap in the Hanna B. Walker Drain to minimize sediment entering Tippecanoe Lake. The trap will be excavated approximately four feet below the existing grade of the stream. Approximately 100 linear feet of waterways will be affected by the project. The trap will be maintained annually or as needed. No wetlands will be affected by the project.

Based on the site inspection conducted on April 6, 1998, and available information, it is the judgment of this office that the proposed project will comply with the applicable provisions of 327 IAC 2 and Sections 301, 302, 303, 306, and 307 of the Clean Water Act if the applicant complies with the conditions set forth below. Therefore, subject to the following conditions, the Indiana Department of Environmental Management (IDEM) hereby grants Section 401 Water Quality Certification for the project described in your application dated September 24, 1998. Any changes in project design or scope not detailed in the application described above are not authorized by this certification.

General Conditions:

1. Physical disturbance of banks, soils, and vegetation shall be limited to that which is absolutely necessary to achieve the project purpose.

2. Reseed all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue) and legumes upon completion.

3. The contractor performing the actual operations must comply with Section 311 of

the Federal Clean Water Act and with 327 IAC 2-6 (formerly Indiana Stream Pollution Control Board Regulation 330 IAC 1-6-1) concerning spills of oil and hazardous materials.

4. Deposition of dredged or excavated materials shall be carried out in such a manner that sediment run-off to any waterbody is controlled. Areas used for deposition of dredged materials shall be diked or bermed. The dredged or excavated material shall be stabilized with seed and straw mulch upon completion of construction activities.

5. Appropriate erosion control methods shall be installed prior to any soil disturbance to prevent soil from leaving the construction site. Appropriate erosion control methods include, but are not limited to, straw bale barriers, silt fencing, erosion control blankets, phased construction sequencing, and earthen berms. Information and assistance regarding control of construction-related soil erosion are available from the Soil and Water Conservation District offices, collocated with the local field office of the USDA Natural Resources Conservation Service in each county, and the regional field offices of the Indiana Department of Natural Resources' Division of Soil Conservation, whose administrative office is at 402 W. Washington Street, Room W264, Indianapolis, IN 46204.

6. Contact the Recommendation Section of the Indiana Department of Natural Resources at 317/232-4164 regarding the possible requirement of a permit from the Indiana Department of Natural Resources.

7. All construction sites five acres or greater are subject to 327 IAC 15-5 (Rule 5) which requires an erosion control plan. Please contact Mr. Mike Thompson of the IDEM Permits Section at 317/232-8648 regarding the requirements of this general permit rule.

8. Unless specifically stated, depicted, or detailed in the aforementioned correspondence and project plans, no construction equipment, temporary run-arounds, coffer dams, causeways, or other such structures will be permitted to enter or be constructed within the stream. A modification of this Section 401 Water Quality Certification is required from this office if any of the aforementioned items are needed for project construction.

This certification is effective 18 days from the mailing of this notice unless a petition for review and a petition for stay of effectiveness are filed within this 18 day period. If a petition for review and a petition for stay of effectiveness are filed within this period, any part of the permit within the scope of the petition for stay is stayed for 15 days, unless or until an Environmental Law Judge further stays the permit in whole or in part.

This decision may be appealed in accordance with IC 4-21.5, the Administrative Orders

and Procedures Act. The steps that must be followed to qualify for review are:

1. You must petition for review in a writing that states facts demonstrating that you are either the person to whom this decision is directed, a person who is aggrieved or adversely affected by the decision, or a person entitled to review under any law.

2. You must file the petition for review with the Office of Environmental Adjudication (OEA) at the following address:

   Office of Environmental Adjudication
   ISTA Building
   150 West Market Street
   Suite 618
   Indianapolis, IN 46204

3. You must file the petition within eighteen (18) days of the mailing date of this decision. If the eighteenth day falls on a Saturday, Sunday, legal holiday, or other day that the OEA offices are closed during regular business hours, you may file the petition the next day that the OEA offices are open during regular business hours. The petition is deemed filed on the earliest of the following dates: the date it is personally delivered to OEA; the date that the envelope containing the petition is postmarked if it is mailed by United States mail; or, the date it is shown to have been deposited with a private carrier on the private carrier's receipt, if sent by private carrier.

Identifying the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, or date of this notice will expedite review of the petition.

Note that if a petition for review is granted pursuant to IC 4-21.5-3-7, the petitioner will, and any other person may, obtain notice of any prehearing conferences, preliminary hearings, hearings, stays, and any orders disposing of the proceedings by requesting copies of such notices from OEA.

Granting of Section 401 Water Quality Certification does not relieve the applicant from the responsibility of obtaining any other permits or authorizations that may be required for this project or related activities from IDEM or any other agency or person.

This certification does not:

(1) authorize impacts or activities not detailed in the application or Corps Public Notice;

(2) authorize any injury to persons or private property or invasion of other private rights, or any infringement of federal, state or local laws or regulations;

(3) convey any property rights of any sort, or any exclusive priveleges;

(4) preempt any duty to obtain federal, state or local permits or authorizations

required by law for the execution of the project or related activities; or
(5) authorize changes in the plan design detailed in the application.

The applicant shall allow the commissioner or an authorized representative (including an authorized contractor acting as a representative of the commissioner), upon the presentation of credentials:

(1) to enter upon the applicant's property;
(2) to have access to and copy at reasonable times any records that must be kept under the conditions of this certification;
(3) to inspect, at reasonable times, any monitoring or operational equipment or method; collection, treatment, pollution management or discharge facility or device; practices required by this certification; and any wetland mitigation site; and
(4) sample or monitor any discharge of pollutants or any wetland mitigation site.

Failure to comply with the terms and conditions of the Section 401 Water Quality Certification may result in enforcement action against the applicant. If an enforcement action is pursued, the applicant could be assessed up to $25,000 per day in civil penalties. The applicant may also be subject to criminal liability if it is determined that the Section 401 Water Quality Certification was violated willfully or negligently.

If you have any questions about this certification, please contact Mr. Randy Jones, Project Manager, of my staff at (317) 233-2473, or you may contact the Office of Water Management through the IDEM Environmental Helpline (1-800-451-6027).

If you have procedural questions regarding filing a petition for review you may contact OEA at 317-232-8591.

Sincerely,

Matthew C. Rueff
Assistant Commissioner
Office of Water Management

cc: Mr. John Richardson, JF New & Associates, Inc.
Ms. Amy Babey, COE- Louisville District
Ms. Liz McCloskey, USFWS- Warsaw
Mr. Steve Jose, IDNR

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

CERTIFICATE OF APPROVAL
PUBLIC FRESHWATER LAKE

MAILED

AUG 10 1999

APPLICATION #: PL-18,222

LAKE : Tippecanoe Lake

APPLICANT : Tippecanoe Environmental Lake and
Watershed Foundation
Holly LaSalle
67 EMS T79A Lane
Syracause IN 46567

AGENT : J. F. New & Associates, Inc.
John Richardson
708 Roosevelt Road
Walkerton IN 46574

AUTHORITY : IC 14-26-2 with 310 IAC 6-2

DESCRIPTION : A 20' x 75' sediment trap will be built in the channel to prevent sediment flow into Tippecanoe Lake. The eastern channel bank will be reinforced with a PVC sheet piling seawall which will be placed approximately 1 foot lakeward of the existing shoreline along 46' of the 75' sediment trap, and 1 foot lakeward of the existing concrete seawall along 29' of the 75' sediment trap. The area between the PVC sheet piling seawall and the shoreline/concrete seawall will be filled with glacial stone and topped with a biolog which will be staked in place and seeded. The bottom elevation of the sediment trap will be 827.00 feet, M.S.L., and the trap will be constructed approximately 30' downstream of an existing footbridge. Details of the project are contained in plans and information received at the Division of Water on October 30, 1998, December 31, 1998, January 15, 1999, January 20, 1999, March 3, 1999 and March 29, 1999.

LOCATION : #1 EMS T49A near Leesburg, Tippecanoe Township, Kosciusko County
NE¼, SE¼, SW¼, Section 8, T 33N, R 7E, North Webster Quadrangle
UTM Coordinates: Downstream = 4575350 North, 605500 East

APPROVED BY :
Michael W. Neyer

APPROVED ON : August 6, 1999

Attachments: Notice Of Right To Administrative Review
General Conditions
Special Conditions
Service List

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

GENERAL CONDITIONS

APPLICATION #: PL-18,222

(1) If any archaeological artifacts or human remains are uncovered during construction, federal law and regulations (16 USC 470, et seq.; 36 CFR 800.11, et al) and State law (IC 14-21-1) require that work must stop and that the discovery must be reported to the Division of Historic Preservation and Archaeology within 2 business days.

Division of Historic Preservation and Archaeology
Room W274
402 West Washington Street
Indianapolis, Indiana 46204

Telephone: (317) 232-1646, FAX: (317) 232-8036

(2) This permit must be posted and maintained at the project site until the project is completed.

(3) This permit does not relieve the permittee of the responsibility for obtaining additional permits, approvals, easements, etc. as required by other federal, state, or local regulatory agencies. These agencies include, but are not limited to:

Agency	Telephone Number
Louisville District, U.S. Army Corps of Engineers	(502) 582-5607
Indiana Department of Environmental Management	(317) 233-2471
Local city or county planning or zoning commission	Check local directory

(4) This permit must not be construed as a waiver of any local ordinance or other state or federal law.

(5) This permit does not relieve the permittee of any liability for the effects which the project may have upon the safety of the life or property of others.

(6) This permit may be revoked by the Department of Natural Resources for violation of any condition, limitation, or applicable statute or rule.

(7) This permit shall not be assignable or transferable without the prior written approval of the Department of Natural Resources. To initiate a transfer contact:

Mr. Michael W. Neyer, PE, Director
Division of Water
Room W264
402 West Washington Street
Indianapolis, Indiana 46204

Telephone: (317) 232-4160, In-State Toll Free: (877) 928-3755
FAX: (317) 233-4579

(8) The Department of Natural Resources shall have the right to enter upon the site of the permitted activity for the purpose of inspecting the authorized work.

(9) The receipt and acceptance of this permit by the applicant or authorized agent shall be considered as acceptance of the conditions and limitations stated on the pages entitled "General Conditions" and "Special Conditions".

STATE OF INDIANA
DEPARTMENT OF NATURAL RESOURCES

SERVICE LIST

APPLICATION #: PL-18,222

Tippecanoe Environmental Lake and
Watershed Foundation
Holly LaSalle
67 EMS T79A Lane
Syracause IN 46567

Kosciusko County
Soil and Water Conservation District
217 East Bell Drive
Warsaw IN 46580-9362

Staff Assignment
Administrative: Darlene Emerson
Technical : George F. Menze
Environmental : Stephen H. Jose

J. F. New & Associates, Inc.
John Richardson
708 Roosevelt Road
Walkerton IN 46574

Division of Law Enforcement, IDNR
North Region Headquarters (Dist 1)
c/o Capt. Bruce Clear
RR 6, Box 344
Peru IN 46970

Regulatory Functions Branch
Louisville District, USACOE
c/o Mr. Jim Townsend
P.O. Box 59
Louisville KY 40201-0059

Kosciusko County Plan Commission
100 West Center
Room 31
Warsaw IN 46580-9998

Post-it® Fax Note 7671	Date	# of pages ▶ 5
To JOHN RICHARDSON	From	
Co./Dept. J.F. NEW	Co.	
Phone # (219) - 586 - 3446	Phone #	
Fax #	Fax #	

Date of Action: July 29, 1991

DEPARTMENT OF I
DIVISION
Indianapolis, Indiana

Application No. PL-14,274

Application Date: April 12, 1991
Received Date: April 15, 1991
Public Notice Date: April 19, 1991

TITLE: DREDGE THE LAKE BED AND CLEAN OUT A PORTION OF AN EXISTING CHANNEL ON TIPPECANOE LAKE NEAR OSWEGO

OWNER: Robert M. and Holly LaSalle
#1 EMS T49A
Syracuse, Indiana 46567

PROJECT DESCRIPTION: Along approximately 50 feet of the approximate 200-foot frontage of and extending approximately 100 feet from the property described below, deepen the lake bed by dredging to a depth of 4 feet below the legal level of the lake.

Also, along approximately 200 feet of the approximate 200-foot frontage of the property described below, clean out an existing 45-foot wide channel by dredging to a depth of 8 feet below the legal level of the lake beginning at the center of the channel and uniformly sloping to 3 feet or less at the legal shoreline.

Also, construct a 20-foot long and 8-foot deep sediment trap in the channel approximately 20 feet upstream of the upstream end of the proposed channel dredging. A silt screen will also be placed at the downstream end of the sediment trap.

PROPERTY DESCRIPTION: Pt. NE¼, SE¼, SW¼, Section 8
Township 33 North, Range 7 East
Kosciusko County
North Webster Quadrangle Map
UTMN = 575325, UTME = 605475

DESCRIPTION OF LAKE: Tippecanoe Lake is located at Oswego, has a surface area of 768 acres, a maximum depth of 123 feet, and its shoreline is 90% developed. The legal level of Tippecanoe Lake is elevation 836.40 feet, M.S.L.

COMMENTS BY THE DIVISIONS: The following review comments have been submitted concerning the above-referenced project:

Division of Water: The purpose of the proposed project is to remove accumulated leaves, silt, and debris from the channel to improve boat access to the applicant's property and to provide access to open water.

Due to the possible adverse effects that the proposed dredging project could have on the water level of Tippecanoe Lake, comments were requested from the Ground Water Section.

General hydrogeologic conditions are as follows:

(a) Regional groundwater flow is to the south-southwest.
(b) Local groundwater flow at the northeast end of Tippecanoe Lake is towards the lake.
(c) The majority of static water levels around the lake are between flowing (static water level above ground surface) and 10 feet below ground surface.
(d) Two aquifers exist in the first 100 feet below the surface of Tippecanoe Lake. Below a clay layer (that does not exceed a thickness of 22 feet) lies a gravel layer that varies from 5 to 20 feet thick, with an average of 10 to 15 feet. This upper gravel layer is underlain by 20 to 50 feet of clay. The lower gravel layer is below the second clay layer, usually at 60 to 75 feet below the surface.

It should be noted that the elevation of the bottom of the channel (after the proposed dredging project is completed) will be below the original elevation of the channel bottom. Parts of the channel at the landward end will be deepened by as much as 5 feet below the original (before sedimentation) level of the channel bottom.

Because ground water flow is towards the lake and the hydraulic heads are very high on the northeast end of Tippecanoe Lake, it is not likely that the channel dredging, the lake bed dredging, or the silt-trap construction will affect the lake level.

Upon receiving comments from the Division of Nature Preserves, it was noted that the property on the opposite side of the channel is a dedicated state nature preserve. Therefore, the project has been referred to the Division of Nature Preserves for their recommendation.

Division of Fish and Wildlife: This project was inspected by Keith Poole, Wetlands Biologist and Jed Pearson, District Fisheries Biologist, on June 19, 1991.

The Division of Fish and Wildlife has several concerns about this proposal to hydraulically dredge a total of 300 feet of lake bottom in the northeast corner of Lake Tippecanoe. Although a 200-foot channel is present along the applicant's property at the mouth of an inlet, there is no longer any trace of a former 100-foot channel to deepwater sections of the lake. The entire area is covered with algae and submergent aquatic plants. Emergent plants are present nearby but not within the project site.

There is evidence of substantial sedimentation within the inlet due to runoff from the adjacent watershed. The silt load of the stream should be reduced by implementing the best management practices within the watershed. This would slow the accumulation of materials at the mouth and curtail the need to disturb the lake bottom. The Division would like to see efforts supported by the applicant to reduce the stream sediment load.

The Division is concerned about protecting the high-quality wetland and natural shoreline area immediately west of the project site. This entire section of shoreline, including the project area, was once part of a larger palustrine emergent wetland fringe. Portions of this fringe have been lost through shoreline development. The remaining area wetland fringe is now part of the Ball Wetland Area. As many as 13 species of plants, including four endangered species, are known to occur in this location. Two birds of special concern, the least bittern and marsh wren, also have been reported in this location.

The Division of Fish and Wildlife is concerned about the cumulative effects of similar projects in the area and the long-term problems likely to be encountered in trying to maintain a boating channel in the area. Unless a sediment trap is constructed on the inlet and maintained on a regular basis, benefits of this proposal will be short-lived. The applicants indicated willingness to construct and maintain a 20 X 20 X 8-foot sediment trap on the upstream portion of the channel bordering their property.

The area is also exposed to prevailing west winds off the lake. Wind-blown and wave-driven materials are likely to continue to accumulate in the area. The applicant is encouraged to restore some emergent aquatic plants (cattails and lily pads) in undredged portions of lake bed to protect the channel against sedimentation and damage caused by wave action.

Despite concerns over this project, the Division of Fish and Wildlife recommends approval of the application with the following conditions:

(1) no dredged materials should be deposited in any wetland areas;
(2) a sediment trap (20 X 20 X 8 feet) should be installed immediately downstream of the abandoned bridge;
(3) the applicant should not initiate any aquatic vegetation removal activities in areas adjacent to the channel.

The applicant should perform periodic maintenance of the sediment trap, as is necessary. This should help to alleviate any further sediment build up in the channel as the result of upstream erosion. Failure to properly maintain the sediment trap could result in a recommendation for denial for any future applications to dredge this channel.

Division of Forestry: Avoid placing fill in areas growing trees. Fill placed over tree rooting areas will likely result in lower tree vigor or even mortality.

Division of Nature Preserves: The proposed dredging project is located less than ½ mile from Ball Wetlands Nature Preserve at the eastern end of Tippecanoe Lake. Nine state listed plant species, four watch list species, and two bird species of special concern are known to occur in this extensive wetland complex. More importantly, the applicant's property and the proposed dredging site is located adjacent to a 14 acre parcel of wetland and forested buffer purchased by the Nature Conservancy as an addition to Ball Wetlands Nature Preserve. The Nature Conservancy owns the wetland parcel located along the entire length of the channel proposed for dredging, just across from the applicant's property.

Initially, the applicant's contractor had proposed locating the dredged spoil on adjacent woodland owned by the Nature Conservancy. Although this site is not a wetland, this property was purchased with the intention of protecting its natural qualities and helping buffer adjacent wetlands. Locating spoil at this site would result in significant adverse environmental impacts.

Lake bed and shoreline alterations within such close proximity to significant wetland areas are of great concern to the Division of Nature Preserves and are generally considered detrimental. However, it is recognized that this is a formally existing channel which has silted in. The Division of Nature Preserves recommends approval of this permit with the following conditions:

(1) The dimensions of the proposed dredging within the formerly established channel be reduced in width from 43 feet to 38 feet, leaving a 5-foot wide undredged strip along the entire western side of the channel, opposite the applicant's property;
(2) the remainder of the west side of the reconstructed channel shall have slopes at no greater than a 2 to 1 (horizontal to vertical) slope;
(3) a sediment trap shall be installed within the channel, upstream of the proposed dredging location;
(4) aquatic vegetation shall not be removed or altered in areas adjacent to the proposed dredging; and
(5) all dredged materials shall be deposited in an upland location away from the lake, and shall not be deposited in any wetland or forested areas;

The applicant should perform periodic maintenance of the sediment trap, as is necessary. This should help to alleviate any further sediment build up in the channel as the result of upstream erosion. Failure to properly maintain the sediment trap could result in a recommendation for denial for any future applications to dredge this channel.

Division of Outdoor Recreation: The project will not directly affect any component of Indiana's Natural and Scenic Rivers System. No Land and Water Conservation Fund projects are affected by this action.

If a need for dredging exists, then the Division of Outdoor Recreation recommends approval; however, the project will occur in, or adjacent to, palustrine forested and emergent wetlands. The Division recommends that the applicant avoid and minimize impacts to these wetlands.

Division of Soil Conservation: Based on the review of the project application, the proposed project should not cause increased erosion and resulting sedimentation if appropriate soil conservation practices are applied and vegetative cover is established in a timely manner on all disturbed areas. Also, the proposed project should not cause increased erosion and resulting sedimentation if dredged material is properly spread or completely removed from the construction site. If on-site spreading of spoil material is done, vegetative cover should be established on the spoil material and all other disturbed areas as soon as possible after construction.

CONCLUSIONS:

The proposed project, with the conditions as specified in the RECOMMENDATION, should not have an adverse effect on the waters of the lake.

Gregory J. Gerke
Lake Inspector

Brian E. Balsley
Head, Lake Permits Section

RECOMMENDATION:

It is recommended that the application be approved with the conditions that:

(1) the proposed sediment trap be constructed immediately downstream of the abandoned bridge prior to any dredging activities;
(2) the dimensions of the proposed dredging within the formerly established channel be reduced in width from 43 feet to 38 feet, leaving a 5-foot wide undredged strip along the entire western side of the channel, opposite the applicant's property;
(3) the remainder of the west side of the reconstructed channel shall have slopes at no greater than a 2 to 1 (horizontal to vertical) slope;
(4) aquatic vegetation shall not be removed or altered in areas adjacent to the proposed dredging;
(5) all excavated material be placed landward of the legal shoreline on the property described above or hauled away from the waters of the lake; no spoil be placed within wetland or forested areas;
(6) fill placed in areas growing trees be avoided;
(7) all bare and disturbed areas be suitably protected during construction; and
(8) all disturbed areas landward of the legal shoreline be suitably revegetated upon completion.

Michael W. Neyer, P.E.
Assistant Director
Division of Water

John N. Simpson, P.E.
Director
Division of Water

THE NATURE CONSERVANCY
INDIANA CHAPTER

The Nature Conservancy®
Saving the Last Great Places

1330 West 38th Street
Indianapolis, IN 46208
317-923-7547
317-923-7582 FAX

March 26, 1999

John B. Richardson
J.F. New and Associates, Inc.
708 Roosevelt Rd.
P.O. Box 243
Walkerton, IN 46574

Dear Mr. Richardson:

This is in response to your letter of March 2, 1999 to Ellen Jacquart regarding the Tippecanoe Lake sediment trap and your subsequent phone conversations with her.

It is my understanding that you have requested permission to place a flexible rubber pipe in the Hanna B. Walker Drain on The Nature Conservancy's (TNC) land on Lake Tippecanoe in Kosciusko County. The piece of land this affects is known as the Cross tract. The pipe would be laid in the ditch for about one week, while sediment from the trap to the south of TNC's land is hydraulically pumped to a spoil area north of TNC's land. The pipe would be removed when the pumping is finished, by the end of April at the latest. You have indicated that no equipment access on TNC land should be necessary.

The scope of work for the project includes your commitment to plant a 40 foot by 130 foot grassy area owned by TNC directly adjacent to the Hanna B. Walker Drain with a low-profile prairie seed mix as outlined on Sheet 2 of the plan sheets included with your letter.

You have my approval to proceed with both of these activities. This approval is contingent on your assurances that you will be particularly careful not to unduly disturb TNC land during operations, and that standard mitigation practices to protect the site will be followed. This approval is effective until May 1, 1999. Enclosed is an extra copy of this letter. Prior to the commencement of work, please sign that extra copy and return it to us to indicate your agreement to proceed with the work as described in this letter.

Please contact Ellen Jacquart if you have any questions.

Sincerely,

Dennis McGrath
State Director

John B. Richardson
For J.F. New and Associates, Inc.

YMCA

CAMP CROSLEY

165 EMS T2 Lane
North Webster, IN 46555
Phone: 219-834-2331
Fax: 219-834-3313
Email: Campcrosley@kconline.com

A Camp
Conference Center
Environmental Learning Center

A Member of
American Camping Association
Christian Camping International
United States Waterski Assoc.
Camp Horsemanship Assoc.
National Wildlife Federation
Indiana Division of Nature Preserves

October 22, 1998

John Richardson
J.F. New and Associates, Inc.
708 New and Associates, Inc.
Walkerton, IN 46574

RE: Hanna B. Walker Drain - Sediment Trap

Dear John:

The Tippecanoe Environmental Lake and Watershed Foundation (the Foundation) has approached Camp Crosley YMCA regarding the use of a portion of our property west of T49A Lane for the construction of a sediment trap on Hanna B. Walker Ditch at its outlet to Lake Tippecanoe. Conceptual designs have been presented to me and I have discussed the project with members of the Foundation Board as well as with the Board of Camp Crosley YMCA. Camp Crosley YMCA welcomes the use of the ditch on our property to benefit Lake Tippecanoe. I understand that this agreement will allow you to proceed with the final design and permitting and complete your feasibility study. Camp Crosley YMCA will continue to work with the Foundation on this project. A more formal agreement will be drafted upon receipt of final plans and specifications for the sediment trap and disposal of the excavated materials.

If you have any further questions, please feel free to contact me at the address on this letter.

Sincerely,

Richard L. Armstrong
Executive Director
Camp Crosley YMCA

RLA/tc

Cc: TLWF file

APPENDIX B

SEDIMENT TRAP SIZING

SEDIMENT BASIN SIZING

FILE VERSION: 2.0

PROJECT NAME: Lake Tippecanoe
STRUCTURE: Hanna B. Walker Sediment Trap

To calculate the initial volume needed for a rectangular sediment basin, enter the following information:

Average Soil Loss (ton/acre/yr):	3	SCS values of 2 to 5 tons/acre/yr
Contributing Watershed Area (acre):	600	
Percent Area of High Erosion Potential:	70%	
Percent Eroded Soils Reaching Waterway:	40%	
Sediment Density (lb/cf):	100	
Trapping Efficiency of Basin:	50%	

Waterway Sediment Yield (ton/yr):	504
Waterway Sediment Load (ac-ft/yr):	0.23
Basin Sediment Load (ac-ft/yr):	0.12
Basin Sediment Yield (ton/yr):	252

Width at Top of Basin (ft):	30	
Length at Top of Basin (ft):	75	
Basin slope:	1	to 1
Depth of Basin (ft):	6	

Width at Bottom of Basin (ft):	18	
Length at Bottom of Basin (ft):	63	
Volume of Basin (ac-ft):	0.24	
Maintenance Timetable (yr):	1.2	Based on 60% Capacity